

RAKOVSHCHIK, L.S.

Systems of integral equations with almost difference operators.

Sib.mat.zhur. 3 no.2:250-255 Mr-Apr '62. (MIRA 15:4)

(Integral equations) (Calculus, Operational)

RAKOVSHCHIK, L.S.

Integral equations with almost different kernels. Dokl. AN
SSSR 133 no.4:752-755 Ag '60. (MIRA 13:7)

1. Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova.
Predstavleno akademikom V.I.Smirnovym.
(Integral equations)

RAKOVSHCHIK, L.S.

On a condition for unlimited applicability of Chaplygin's theorem
on inequalities to systems of first order differential equations.
Dokl. AN SSSR 117 no.3:378-379 N '57. (MIRA 11:3)

1. Novosibirskiy elektrotekhnicheskiy institut. Predstavleno aka-
denikom S.L. Sobolevym.
(Differential equations, Partial)

16.2800

S/199/62/003/002/003/004
B125/B102

AUTHOR: Rakovshchik, L. S.

TITLE: Systems of integral equations with quasidifferential operators

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 3, no. 2, 1962, 250-255

TEXT: The main result of the present paper on the generalization of previous results obtained by the author (Dokl. Ak. nauk. SSSR, 133, no. 4 (1960), 752-755) to systems of integral equations of the type

$$A_T = (1/2\pi) \int_{-\infty}^{\infty} N(t, \lambda) \bar{\Phi}(\lambda) e^{-i\lambda t} d\lambda + T_T = f(t) \quad (1)$$

is the reduction of the

calculation of the index of a system to that of a homogeneous equation. Such systems of equations (1) are studied in the spaces

$L_p^{(n)}(-\infty, \infty)$, $1 < p < \infty$ of n -dimensional vector functions whose components are contained in the space $L_p(-\infty, \infty)$. The elements of the matrix

$\|N_{jl}(t, \lambda)\|$, $j, l = 1, 2, \dots, n$ which in (1) is denoted with $N(t, \lambda)$, are contained

Card 1/2

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S/020/60/133/004/033/040 XX
C111/C333

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AUTHOR: Rakovshchik, I.S.

TITLE: Integral Equations With Almost Difference Kernels

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4,
pp. 752 - 755

TEXT: The author considers the equations

$$(1) \quad a(t) \varphi(t) + \int_{-\infty}^{\infty} k(t, t - \tau) \varphi(\tau) d\tau = f(t).$$

If the convolution theorem can be applied to the pair $k(c, t)$, $\varphi(t)$, where c is arbitrary and $\varphi(t)$ is finite infinitely differentiable, the operator (1) admits the representation

$$(2) \quad k \varphi = \frac{1}{2\pi} \int_{-\infty}^{\infty} K(t, \lambda) \phi(\lambda) \exp(-i\lambda t) d\lambda,$$

where $\phi(\lambda)$ is the Fourier transform of $\varphi(t)$ and $K(t, \lambda) =$
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Integral Equations With Almost Difference Kernels

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C111/C333

$$= a(t) + \int_{-\infty}^{\infty} k(t, n) \exp(i \lambda n) dn .$$

Theorem 1: For almost all t , $-\infty < t < \infty$, let 1.) $K(t, \lambda)$ be absolutely continuous in λ in every finite interval; let $\lim_{\lambda \rightarrow +\infty} K(t, \lambda) = K(t, +\infty)$ and

$\sup_t |K(t, +\infty)| < C$ exist; 2.) for a certain continuously differentiable one-to-one mapping $\mu = \mu(\lambda)$ of the whole axis to a finite closed interval let

$$\sup_{-\infty}^{\infty} \int \left| \frac{\partial K(t, \lambda)}{\partial \lambda} \right|^q |\mu'(\lambda)|^{q-1} d\lambda \leq C_1, \quad \frac{1}{p} + \frac{1}{q} = 1$$

hold. Then the operator (2) is bounded relative to the norm of L_p on the set D of the finite infinitely differentiable functions.

Theorem 2: Theorem 1 holds, if the supposition 2) is replaced by 2') : There exists a function $\Omega(\lambda) \in L$ so that $|\partial K(t, \lambda) / \partial \lambda| \leq \Omega(\lambda)$ holds for almost all t .

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Theorem 3: Let $K(t, \lambda)$ have discontinuities of first kind for fixed t in the points of the sequence $\{c_k\}$. If $\sum_k \sup_t |K(t, c_k + 0) - K(t, c_k - 0)| < \infty$ and if the function $K(t, \lambda) - \sum_k \theta(\lambda - c_k) [K(t, c_k + 0) - K(t, c_k - 0)]$ satisfies the suppositions of theorem 1 or 2, then (2) is bounded in L_p ($\theta(\lambda)$ is the Heaviside function).

$K(t, \lambda)$ is called (according to S.G. Mikhlin) symbol of the operator

$$(4) \quad A\varphi = \frac{1}{2\pi} \int_{-\infty}^{\infty} K(t, \lambda) \phi(\lambda) \exp(-i\lambda t) d\lambda + T\varphi,$$

where T is completely continuous in L_p . The author considers operators, the symbols of which satisfy the assumptions of theorem 1 and the conditions: $K[t, \lambda(\mu)]$ and $\partial K[t, \lambda(\mu)] / \partial \mu$, where $\lambda(\mu) = -\cotg 1/2 \mu$, are continuous in $[0, 2\pi]$ and have the same values in 0 and 2π ; the modulus of continuity $\omega(t, \delta)$ of $\partial K / \partial \mu$ (relative to μ) tends to 0 with $\delta \rightarrow 0$.
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Integral Equations With Almost Difference Kernels

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uniformly in t ; if $|t - \tau|$ is sufficiently small or $|t|, |\tau|$ sufficiently large and if $t\tau > 0$, then it is

$$|k(t, \lambda) - k(\tau, \lambda)| e^{F(t-\tau)} |t - \tau|^k \theta \left[\frac{1}{2} (t - \tau) \right] \leq \sum_{j=0}^n c_k^{(j)} |t - \tau|^{-\alpha_j}.$$

$$\cdot (1 + t^2)^{\alpha_{j/2} - 1/p} (1 + \tau^2)^{\alpha_{j/2} - 1/q},$$

where $0 \leq \alpha_j < 1$; $c_k^{(j)}$ are constants depending on K , $k = 0, 1, \dots$.

Theorem 4: The product of two operators (4), the symbols of which satisfy the above assumptions, is an operator (4) too, where the symbol of the product is equal to the product of the symbols.

The author defines certain rings G_1 and G_2 of bounded operators (4) (e.g.

the set of operators with symbols of the kind $a(t) + \sum_{i=1}^n b_i(t) K_i(\lambda)(c(t) +$

$+ \sum_{i=1}^n d_i(t) \theta(\lambda - c_i)$) is a $G_1(G_2)$ -ring, if $a(t)$ and $b_i(t)$ are piecewise

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Integral Equations With Almost Difference Kernels S/020/60/133/004/033/040 XX
C111/C333

constant and bounded, $c(t)$ and $d_1(t)$ satisfy the Lip - condition on the whole axis and are constant outside of an interval).

Theorem 5 : If $K(t, \lambda)$ is the symbol of $A \in \tilde{\sigma}$ ($\tilde{\sigma} = \sigma_{1,2}$) and if $|K(t, \lambda)| \geq$

$\geq c > 0$ holds outside of $t^2 + \lambda^2 \leq R^2$, then A can be regularized by an operator of the same ring (Ref. 3).

Theorem 6: Under the assumptions of theorem 5 the theorems of F. Noether (Ref. 4, 5) are satisfied for A .

Theorems 7,8,9 state that under certain conditions the index of A is equal to the index of special operators.

I.M. Rapoport is mentioned in the paper. The author thanks S.G. Mikhlin for the subject.

There are 8 references: 7 Soviet and 1 German.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova
(Leningrad State University imeni A.A. Zhdanov)

PRESENTED: March 24, 1960, by V.I. Smirnov, Academician

SUBMITTED: March 24, 1960

Card 5/5

X

RAKOVSHCHIK, L.S.

Some suggestions concerning the regularization of linear operators in Banach spaces. Dokl. AN SSSR 140 no.5:1023-1025 0 '61. (IIRA 15:2)

1. Petrozavodskiy gosudarstvennyy universitet. Predstavleno akademikom V.I. Smirnovym.

(Operators(Mathematics))

(Banach spaces)

RAKCVSHCHIK, M. [Rakaushchyk, M.] nauchnyy sotrudnik

Brighter than thousand suns. Rab. i sial. 38 no. 4:14 Ap '62.
(MIRA 15:4)

1. Akademiya nauk BSSR.

(Masers)

L 17821-65 EWP(e)/EWT(m)/EPF(c)/EWP(v)/EPR/EWP(j)/T/EWP(b) Pc-L/Pq-L/Pr-L/
Ps-L RM/WH/WW

ACCESSION NR: AP4046081

S/0076/64/038/009/2252/2254

AUTHOR: Lipatova, T. E. ; Rakovshchik, M. G. 15 6

TITLE: Investigation of the glass-titanium tetrachloride styrene system by the electron paramagnetic resonance method

SOURCE: Zhurnal fizicheskiy khimii, v. 38, no. 9, 1964, 2252-2254

TOPIC TAGS: glass titanium tetrachloride styrene, titanium tetrachloride glass system, titanium tetrachloride styrene system, glass TiCl_4 styrene system, electron paramagnetic resonance spectrum, EPR spectrum, paramagnetic center, polystyrene, glass bonded polystyrene, EPR signal intensification 15

ABSTRACT: The EPR spectra of the TiCl_4 -glass, TiCl_4 -styrene, and the glass TiCl_4 -styrene systems were studied. The microporous glass, prepared as described by I. V. Grebenshchikov and O. S. Molchanova (Zh. obshch. khimii, 12, 588, 1942) was dried in vacuum and the TiCl_4 was condensed thereon under vacuum; in the ternary system the styrene was condensed onto the glass- TiCl_4

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ACCESSION NR: AP4046081

a 1:2 ratio of components was used in the TiCl_4 -styrene system. The spectrum of the TiCl_4 -glass system was a singlet with line width of about 30 Oe and g-factor of about 2; on exposure to air for one hour, the intensity increased about 4 times. The spectrum of the ternary system was similar; its behavior on exposure to oxygen is shown. The TiCl_4 styrene system under vacuum showed no signal but on contact with oxygen a signal similar to the others was produced; its intensity increased by 100 times in a month, then started to fall. Thus the presence of paramagnetic particles on a glass surface treated with TiCl_4 was established. The presence of two types of paramagnetic centers was indicated: paramagnetic centers on the glass surface formed by the portion of TiCl_4 actually bonded to the glass¹⁵ and the polystyrene grafted thereon; and paramagnetic centers in the polystyrene polymer formed by the TiCl_4 which was desorbed from the glass surface and dissolved in the monomer. The noted effect of oxygen on the intensity of the EPR signal was unique: the intensification of the signal was contrary to all other known examples where oxygen decreased signal intensity. Orig. art. has: 2 figures.

Cord 2/3

L 17821-65

ACCESSION NR: AP4046081

ASSOCIATION: Akademiya nauk BSSR Institut obshchey i neorganicheskoy khimii
(Academy of Sciences BSSR Institute of General and Inorganic Chemistry)

SUBMITTED: 06May63

ENCL: 00

SUB CODE: GC, IC

NO REF SOV: 005

OTHER: 002

Card 3/3

RAKOVSCHIN, Yu. A.

Mechanical Engineering - Tables, Calculations, Etc.

Determination of the carrying ability of parts under static bending,
Vest. mash. 33 No. 2, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

RAKOVSHCHIK, Yu.A.

On certain topics in solving reverse problems on the applied
theory of plasticity. Izv.AN SSSR.Otd.tekh.nauk no.5:168-171
My '56. (NLRA 9:8)

(Plasticity)

MARGULIS, V.E.; RAKOVSHCHIK, Yu.A.

Calculations and designs for machines for continuous fabric
finishing operations. Tekst.prom. 16 no.7:43-47 J1 '56.
(MLRA 9:8)

(Textile machinery)

RAKOVSHCHIK, Yu. A. Cand Tech Sci -- (diss) "Certain Problems of
the Calculation of Rod Systems With Respect to Bending Beyond the
~~XXXXXXXXXXXX~~ Limits of Elasticity." Mos, 1957. 10 pp 22 cm.
(Central Scientific Research Inst of ^{Building} ~~XXXXXXXXXX~~ Construction)
-Structures), 130 copies (KL, 26-57, 109)

STRUCTURAL MECHANICS

24-4-11/34

AUTHOR: Rakovshchik, Yu. A. (Moscow).
TITLE: Determination of the displacements and calculation of statically indeterminate rod systems. (Opredeleniye peremeshcheniy i raschet staticheskikh neopredelimykh sterzhnevyykh sistem pri izgibe za predelami uprugosti).
PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section) 1957, No.4, pp.75-84 (USSR).
ABSTRACT: Determination of the displacements and calculation of statically indeterminate rod systems in the case of bending beyond the limit of elasticity. A method is described of calculation of the displacements and of calculation of statically indeterminate rod systems made of material with any characteristic of deformation during bending below the limit of elasticity. Determination of the displacements of rods during bending beyond the limit of elasticity was considered in earlier papers (1 - 5). In this paper the method of expressing the coordinates along the length as a function of the bending moment is used for calculating the displacement integral, eq.(1.1) which permits direct utilisation of the dependence between the curvature and the bending moment. Calculation is carried out for statically indeterminate systems which are valid for

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Determination of the displacements and calculation of statically indeterminate rod systems. (Cont.) 24-4-11/34

the general case. The derived equations of compatibility of deformations are so transformed that the curvatures of the individual sections are considered as the unknown values. The method of successive approximations is used for solving these equations; calculation examples are included (Figs. 7 and 8). It is shown that it is necessary to take into consideration hardening of the material when calculating statically indeterminate systems which are stressed beyond the limit of elasticity. The magnitudes of the various unknown variables obtained by taking into consideration the hardening of the material differs appreciably from the values obtained in the case of "elastic" calculations or from those based on the diagram of deformation of an ideal elastic-plastic body. The method proposed by the author is suitable for calculating statically indeterminate rod systems subjected to any type of deformations beyond the limit of elasticity in cases in which the deformation is the sought value. The method can also be used for systems with a non-linear dependence between the stress and the deformation and for calculating creep by means of the ageing theory proposed by Rabotnov, Yu.N.(9). There are 8 figures, 9 references, all of which are Russian.

Card 2/2

SUBMITTED: October 10, 1956.

AVAILABLE:

AUTHOR: RAKOVSHCHIK, YU.A. PA - 3091
 TITLE: Elastic-Plastic Bending of Bars whose Cross Sections Display a
 Symmetry Axis. (Uprugo-plasticheskiy izgib sterzhney, poperechnoye
 secheniyekotorykh obladayet odnoy os'yu simmetrii; Russian)
 PERIODICAL: Izvestia Akad. Nauk SSSR, Otdel. Tekhn., 1957, Vol 21, Nr 3,
 pp 183 - 184 (U.S.S.R.)
 Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: Only those cases are treated where the push and pull diagrams coincide. It is shown that (as the diagram of the material deformation may also always appear) the shift of the beam zero axis (beam of the same material) with a given γ -value (relative bending of the cross section) will be always smaller than with a beam of an ideal elastic plastic material. It thereby follows that, provided the extent of the shift of the zero axis with an ideal elastic plastic material is for the limiting case such that the magnitudes of the bending moments with and without regard to the shift can only accidentally be separated from one another, the calculation of the equation $B = B(\gamma)$ can be worked out without regard to the shift. B - the relative bending moment. The extent of the shift for the case of the construction of a plastic joint can be calculated from the condition of the surface uniformity.
 (2 illustrations and 1 citation from Slav publication)

Card 1/2

AUTHOR: Rakovshchik, Yu. A. (Moscow) SOV/179-59-3-27/45

TITLE: Simultaneous Bending and Twisting of a Round Shaft Outside the Limit of Elasticity (Sovmestnyy izgib i krucheniye kruglogo sterzhnya za predelom uprugosti)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 3, pp 158-160 (USSR)

ABSTRACT: It is assumed that the shaft is made of an ideal plastic material, the properties of which can be described by the relationship $f(M, T) = 0$, where M , T - moments of bending and twisting respectively. This relationship for the elasto-plastic materials can be determined when the corresponding moments M and T are found for the conditions, Eq (1). The state of stresses should correspond to the yielding conditions which can be expressed as Eq (2). Thus, the formulae (3) and (4-6) can be obtained, where M_T , T_T - bending and twisting moments when stresses reach the yielding values, ψ , θ - rate of bending and twisting respectively, H - intensity of deformation, s - cross-section of the shaft. The graph on p 159 represents the

Card 1/2 curves: 1 - calculated from Eq (3), 2 - from Eqs (4-6).

SOV/179-59-3-27/45

Simultaneous Bending and Twisting of a Round Shaft Outside the
Limit of Elasticity

When the material is considered as non-compressible, then the expression for deformation can be written as Eq (7), where ρ - radius of cross-section, φ - angle of twisting, θ_T , ω_T - angle of twisting in relation to the plastic deformation, R - radius of cross-section. This case is represented by the curve 3 in the figure on p 159. As an example, the values of all the three cases are tabulated in the table on p 160, where the last three columns represent the results obtained from Eqs (3), (4-6) and (7) respectively. There are 1 figure, 1 table and 4 references, 2 of which are Soviet, 2 English.

SUBMITTED: November 17, 1958

Card 2/2

RAKOVSHCHIK, Yu.A., kand.tekhn.nauk

IU.A.Rakovshchik's review of "Stress analysis of machine parts" by
I.A.Birger, R.M. Shneiderovich. Vest.mash. 40 no.7:83-84 J1
'60. (MIRA 13:7)

(Mechanical engineering)
(Birger, I.A.)
(Shneiderovich, R.M.)

BERDICHEVSKIY, M.M., inzh.; LOZHKIN, B.G., kand.tekhn.nauk;
RAKOVSHCHIK, Yu.A., kand.tekhn.nauk

Strut-system crane gantries for buildings with a large
network of columns. Prom. stroi. 40 no.12:28-32 '62.
(MIRA 15:12)

1. Tsentral'nyy nauchno-issledovatel'skiy i
proyektno-eksperimental'nyy institut promyshlennykh
zdaniy i sooruzheniy Akademii stroitel'stva i arkhitektury
SSSR.

(Cranes, derricks, etc.)
(Industrial buildings—Equipment and supplies)

LOZHKIN, B.G.; RAKOVSHCHIK, Yu.A.

Design of a new assortment of rolled I-beams and girders with
free and constrained torsion. Prom.stroi. 40 no.4:49-51 '62.
(MIRA 15:5)

1. Tsentral'nyy nauchno-issledovatel'skiy i proyektno-eksperi-
mental'nyy institut promyshlennykh zdaniy i sooruzheniy Akademii
stroitel'stva i arkhitektury SSSR.
(Beams and girders) (Torsion)

RAKOVSHIK, L. S., CAND PHYS-MATH SCI, "INTEGRAL
EQUATIONS WITH NEAR ^{ly} DIFFERENT NUCLEI." LENINGRAD,
1961. (MIN OF ED RSFSR, LENINGRAD STATE PED INST IM
A. I. GERTSEN, CHAIR OF MATH ANALYSIS). (KL, 3-61,
205).

RAKOVSKIY, V. YE., RAKOVSKAY, M. A.

Peat Industry

Mechanical separation of peat. Sbor. nauch. trud. Inst. torfa AN BSSR no. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, August 1952. UNCLASSIFIED.

TUPIKOVA, N.V., LUK'YANOVA, I.V., NERONOV, V.M., RAKOVSKAYA, E.M.

Quantitative characteristics and mapping of the populations of
small mammals in mountain steppes of the Altai. Biul.MOIP. Otd.
biol. 63 no.5:145-146 S-O '58 (MJRA 11:12)
(ALTAI MOUNTAINS--RODENTIA)

RAKOVSKAYA, E.M.

Exposition influence on the natural slope complexes in the tundra-
steppes of the Saylyugem Range. Vest. Mosk. un. Ser 5:Geog. 18 no.
6:90-91 N-D '63. (MIRA 16:11)

NERONOV, V.M.; RAKOVSKAYA, E.M.

Small mammals of the Seminskiy Pass in the Altai Mountains.
Vest. Mosk. un. Ser. 5: Geog. 18 no.4:48-56 J1-Ag '63.

(MIRA 17:2)

1. Institut mikrobiologii i epidemiologii imeni Gamaleya i
Kafedra fizicheskoy geografii SSSR Moskovskogo gosudarst-
vennogo universiteta.

RAKOVSKAYA, E.M.

Natural complexes of the Ukok Plateau, southeastern Altai. Vest.
Mosk. un. Ser. 5: Geog. 17 no.4:41-47 J1-Ag '62. (MIRA 16:1)

1. Kafedra fizicheskoy geografii SSSR Moskovskogo universiteta.
(Ukok Plateau--Physical geography)

KAGAN, G.Ya.; RAKOVSKAYA, I.V.

Cytopathogenic action of the L-forms of some pathogenic bacteria
in tissue culture. Biul. eksp. biol. i med. 57 no.6:69-73 Je '64.
(MIRA 18:4)

1. Otdel obshchey meditsinskoy mikrobiologii (zav. - deystvitel'nyy
chlen AMN SSSR prof. V.D.Timakov) Instituta epidemiologii i
mikrobiologii imeni Gamalei (dir. - prof. P.A.Vershilova) AMN SSSR,
Moskva.

L 12809-66 EWT(1)/EWA(j)/T/EWA(b)-2 JK

ACC NR: AP5028187

SOURCE CODE: UR/0248/65/000/008/0066/0074

AUTHOR: Kagan, G. Ya.; Rakovskaya, I. V.; Koptelova, Ye. I.; Prozorovskiy, S. V.;
Zhiv, B. V.; Komm, S. G.

ORG: Institute of Epidemiology and Microbiology Academy of Medical Sciences SSSR
(Institut epidemiologii i mikrobiologii im. N. F. Gamalei AMN SSSR, Moscow)

TITLE: Comparison of the cytopathogenic effect produced by different types of L-
form bacteria and mycoplasmas in tissue cultures

SOURCE: AMN SSSR. Vestnik, no. 8, 1965, 66-74

TOPIC TAGS: bacteria, microbiology, mycoplasma

ABSTRACT: The authors present the results of a comparative study of the cytopatho-
genic effect produced by several species of L-form bacteria and mycoplasmas and their
capacity to grow in various tissue cultures. The bacteria tested included the stable
L-culture of *S. typhi* No. 152L, stable L-culture of the hemolytic streptococcus No.
196L, and two stable L-cultures of the streptococci Nos. 406L and 409L. *M. laidlawii*
and *M. agalactiae* were the mycoplasmas tested. The L-form bacteria and mycoplasmas

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UDC: 576.8.095.5.06 : 576.3

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Card 2/2

L 12809-66

ACC NR: AP5028187

differ in their elective action on various tissue cultures and in the nature and intensity of the cytopathogenic changes that they produce. For example, *M. laidlawii* provokes a sharp cytopathogenic effect in chick embryo cultures, the titer reaching a maximum on the second day. *M. agalactiae* produces very slight cytopathogenic changes, e.g., attenuation of the layer, the titer reaching a maximum in 6-8 days. Mycoplasmas grow on chick embryo fibroblasts in titers of 10^5 to 10^7 without inducing cytopathogenic changes. Mycoplasmas differ from one another in the time required for the cytopathogenic changes to become manifest in cultures and in the pH of the medium. The results of these investigations suggest that a study of the cytopathogenic effect and growth of L-form bacteria and mycoplasmas in tissue cultures may be useful in differentiating them. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 06/ SUBM DATE: 28May65/ ORIG REF: 001/ OTH REF: 001

jw

Card 2/2

RAKOVSKAYA, I.V.

Contamination of tissue cultures by pleuropneumonia-like organisms.
Vop. virus. 10 no.2:233-235 Mr-Apr '65.

(MIRA 18:10)

1. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov.

KOMM, S.G.; KAGAN, G.Ya.; PROZOROVSKIY, S.V.; KOPELOVA, Ye.I.; KAZNEVA,
I.V.; ISAKIN, V.P.; TURKICH, Ye.Ye.

Basic trends in the cinematographic study of L-form bacteria
and Mycoplasma. Vest. AMN SSSR 20 no.8:20-22 '65. (JGPA 18:9)

1. Institut epidemiologii i mikrobiologii imeni N.F.Gamalei
AMN SSSR i otdel nauchno-issledovatel'skoy kinematografii
AMN SSSR, Moskva.

RAPOV, A. I. . . .

Biological characteristics of Mycoplasma polluting tissue cultures. Vest. AMN SSSR 20 no.8:50-54 '65. (MIRA 18:9)

1. Institut epidemiologii i mikrobiologii imeni N.F.Gamalei
AMN SSSR, Moskva.

RAKOVSKAYA, M.; KOSSAKOVSKAYA, M.

Study of the degree of mineralization of the bones of rats by
the use of the densimetric method of interpreting roentgensgrams.
Vop. pit. 18 no. 6: 42-47 N-D '59. (MIRA 14:2)

1. Iz Gosudarstvennogo instituta gigiyeny, Varshava, Pol'sha.
(BONES—RADIOGRAPHY)

RAKOVSKIY, V.; POZNYAK, V.; RAKOVSKAYA, M.; SHIMANSKIY, V.

Problem of the origin of solid fuels. Trudy Inst.torf. AN BSSR
3:79-94 '54. (MLRA 9:3)

(Peat bogs)

РАКОВСКАЯ, М.А.

ХИМИИ ПРОЦЕССОВ ОБРАБОТКИ
ТЕКСТИЛЬНЫХ ТОВАРОВ

В.К. Раковский, М.М. Рыженко, В.С. Носов,
М.А. Раковская, Л.В. Барышников, М.А. Борова

VIII Nizhny Novgorod Congress for General and Applied Chemistry 88
Section of Chemistry and Chemical Technology of Pulp,
publ. by Acad. Sci. USSR, Moscow 1979

abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 15 March 1979.

USSR / Cultivated Plants. Plants for Technical Use. M-5
Sugar Plants.

Abs Jour: Ref Zhur-Biol., 1958, No 16, 73038.

Author : Vasil'yev, A. A.; Rakovskaya, M. V.; Stepanov, F.A.
Inst : Not given.
Title : Accelerating Boll Opening in the Cotton Plant by
Chemical Means.

Orig Pub: Sots. s.kh. Uzbekistana, 1957, No 9, 23-24.

Abstract: Plant protection stations of the All-Union Scientific-Research Chemical Institute tested the effect of the following preparations from 1956: sodium arsenite (3%), sodium pentachlorophenolate (3%), a mineral oil emulsion of pentachlorophenol (3%), "Endotal" (0.6%), sodium ethylxanthogenate (3%) and magnesium chlorate (1.5%). The harvested green boll were first treated by immersion in a solution

Card 1/2

92

OLINTSOVA, M.S.; RAKOVSKAYA, M.V.; SISAKYAN, N.M.

Activity of some enzymes of phosphorus metabolism in chloroplasts
isolated from a nonaqueous medium. Biokhimiia 28 no.4:616-
621, JI-Ag '63. (MIRA 18:3)

1. Institut Biokhimi imeni Bakha AN SSSR, Moskva.

RAKOVSKAYA, N.

Sheepdog Allas and guard dog Demura. IUn.nat. no.2:13 P '60.
(MIRA 13:5)

(Watchdogs)

RAKOVSKAYA, N.

Milk. Zdorov'e 3 no.9:21-23 S '57.
(MILK)

(MLRA 10:9)

RAKOVSKAYA, N.

How wolves became dogs. IUn.nat.no.4:35-37 J1 '56. (MIRA 9:9)
(Wolves) (Dogs)

RAKOVSKAYA, H.Ye.

Vitamins. Zdorov's 1 no.6:9-11 Je. '55.

(MIRA 9:5)

(VITAMINS)

IV
RAKOVSKAYA, Nina

[The wonderful ABC's] Chudesnaya azbuka. Izd. 6-oe ispr. i dop.
Moskva, Medgiz, 1956. 36 p. (MIRA 11:2)
(VITAMINS)

RAKOVSKAYA, N.

Descendants of the wild boar. IUn.nat.no.12:16-17 D '57.
(MIRA 10:12)

(Swine)

RAKOVSKAYA, N.

RAKOVSKAYA, N.

The cow and its relatives. IUn. nat. no.2:24-25 P '58. (MIRA 11:1)
(Cattle)

NEMIROVA, Ye.; RAKOVSKAYA, N.

Fires of a Kaluga pine forest. Zdorov'e 8 no.8:16-17 Ag '62.
(MIRA 15:8)

(KALUGA--CHILDREN--HOSPITALS)

НАРОДНАТА АРМИЯ, И.

The sun birds. IUn.nat.no.1:24-26 Ja '57.
(Poultry)

(MLRA 10: 7)

RAKOVSKAYA, N.Ye.

Tireless researcher. Zdorov'e 5 no.3:7-8 Apr '59. (MIRA 12:3)
(Molchanova, Ol'ga Pavlovna, 1886)
(NUTRITION--RESEARCH)

LUR'YE, S.N.; ANGELOV, I.I.; RAKOVSKAYA, V.A.

Preparation of high-purity potassium bromide. Trudy IKRA
no.23:29-30 '59. (MIRA 13:7)
(Potassium bromide)

BRUDZ', V.G.; USKOVA, L.Ye.; NOVKOVSKAYA, N.A.; IOSLAVSKAYA, K.D.; RAKOVSKAYA, V.A.; PETROVA, G.D.; BROVKIN, L.V., red.; SHPAK, Ye.G., tekhn. red.

[Manual of technical specifications for reagents and preparations used in laboratory work; organic reagents and preparations] Sbornik tekhnicheskikh uslovii na reaktivy i preparaty dlia laboratornykh rabot; organicheskie reaktivy i preparaty. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit.-rv. 1961. 582 p. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimreaktivov i osobo chistykh veshchestv Gosudarstvennogo komiteta Soveta Ministrov SSSR po khimii (for all except Brovkin, Shpak).
(Chemical tests and reagents)

KANTOROVICH Vladimir Yakovlevich. RAKOVSKAYA, V.D., red.

[Sakhalin notebooks] Sakhalinskie tetradi. Moskva, Sovetskii pisatel', 1965. 425 p. (MIRA 18:8)

RAKOVSKAYA, Ye.V.

Clinical characteristics of typhoid fever; data from the First
Tashkent City Hospital for Infectious Diseases for 1958. Nauch.
trudy uch.i prak.vrach. no.2:65-75 '61. (MIRA 15:8)
(TYPHOID FEVER)

RAKOVSKAYA, Z.M. [Rakova'ka, Z.M.], student biolog.fakul'teta;
SAGAYDAK, I.M. [Sahaidak, I.M.], dots., nauchnyy rukovoditel'.

Comparison of Odessa 10 and Golden Empress corn varieties
and their hybrids. Pratsi Od.un. Zbir.stud.rok. 149 no.5:
187-188 '59. (MIRA 13:4)

1. Odesskiy gosudarstvennyy universitet.
(Corn(Maise)--Varieties)

RAKOVSKI, K. ; MANOLOVA, P. ; LILAROV, S.

Thermal plasticization of natural rubber.

P. 9, (Lika Promishlenost) Vol. 6, no. 1, 1957, Sofia, Bulgaria

SO: Monthly Index of East European Accessions (EEAI) Vol. 6, No. 11 November 1957

BONCH-BRUYEVICH, A.M.; RAKOVSKIY, A.R.

Brief news. Radiotekhnika 20 no.5:78-80 My '65.

(MIRA 18:10)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radio-
tekhniki i elektrosvyazi imeni Popova.

RAKOVSKIY, A. V.

Khimiko-tekhnikeskoe issledovanie kroviannogo al'bmina. Moskva, 1928.
32 p., tables, diagrs. (TSAGI. Trudy, no. 34)

Summary in English

Title tr.: Chemical and technical analysis of blood albumin (as an important ingredient of glue for aviation plywood).

QA911.M65 no. 34

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

12

PREPARATION AND PROPERTIES OF PURE METHANOL

The preparation of absolute, chemically pure methanol and its properties. A. V. KANOVSKII AND A. V. POGOR. *Trans. Inst. Pure Chem. Reagents* (Moscow), No. 9, 95 (1959). —Through the action of I_2 in the presence of alkalies, on MeOH contg. AcH, and following dehydration with Mg and $HgCl_2$, abs. MeOH with 0.001% AcH (the limit of sensitivity of the AcH test) and free from all other impurities was obtained. Where only a few tenths % of AcH was present in MeOH, I_2 pptd. MeI in 1:1 MeOH mixed with 2:1 N NaOH and a few g. water, decreasing the AcH content to a few hundredths %. With this amt. of AcH, the MeI formed through I_2 did not ppt., but remained in admist. Such a mist. was allowed to stand for 24 hrs., stored in a refrigerator and then passed through a dephlegmator, with only a slight decrease in AcH, even after repetition of the process. Removal of the CH_2O formed by oxidation through $KMnO_4$ to HCO_2H did not improve, but even increased the AcH content. After isolation and fractionation, MeOH can be concd. to 99.9995%. Such alc., contg. about 0.002% AcH + $HCHO$, upon boiling with Ca, was found to be aldehyde-free, but retained an unpleasant odor. Fractionation of 99.5% alc., Ca-untreated and in binary admist. with water, by means of Kahn's dephlegmator proved too tedious a method and was dropped. Mg was found to be the best dehydrating agent in the presence of $HgCl_2$. MeOH was treated with more than 1% enough Mg to combine with the H_2O present, in the presence of $HgCl_2$ for several hrs. with alternate cooling, then distd. after evolution of H_2 had ceased. This MeOH did not show any unpleasant odor, appreciable amts. of ether, nor substances formed through $KMnO_4$; gave only a slight yellow coloration with H_2SO_4 ; AcH, 0.001%; b_m 64.39°, d_4^{20} 0.7956, n_D^{20} 1.32900. The effect of small quantities of AcH on the d , and on the n of abs. MeOH was estd. With 0.1% AcH, the d was not affected, while n increased with an increase in AcH. The correction for n_D with AcH up to 1% was: $n_D = 1.32900 + 0.00134p - 0.00079p^2$, where p = % AcH in the mist.

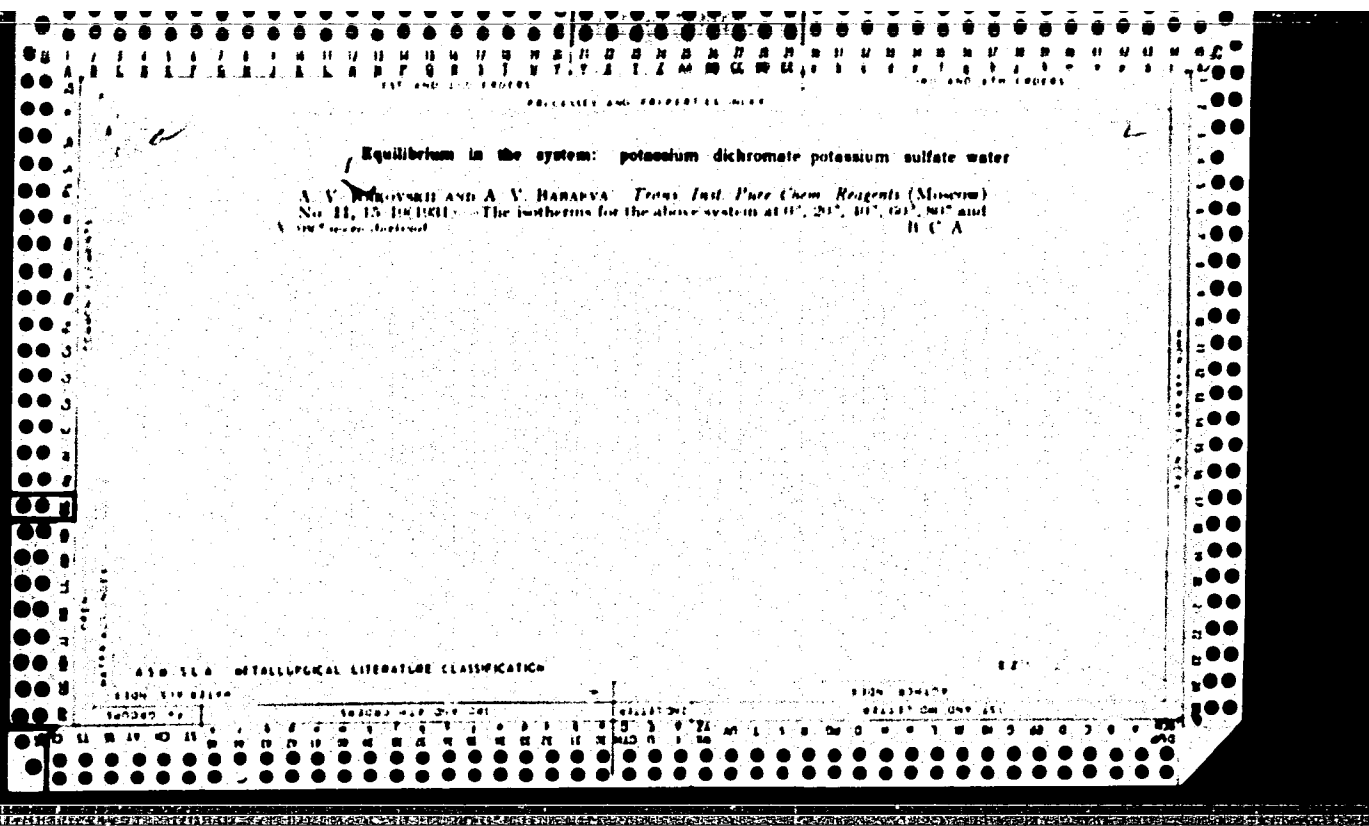
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PROCESS AND PROPERTIES INDEX
BY END OF THE COPY

Heteropoly compounds. I. The sodium salts of phosphotungstic acid. A. V. KARAVANAL and E. A. NIKITINA. *J. Gen. Chem.* (U. S. S. R.) 1, 290 (1931).—A discussion is given of the theories of Mislati-Rosenheim and Pfeiffer on the constitution of phosphomolybdic and phosphotungstic acids as well as on the di- and tri-Na salts of these acids. Methods of prepn. of di- and tri-Na tungstate with HCl are described. The quant. methods for the detn. of WO_3 and P_2O_5 as well as the method used by the authors are given. II. Sodium phosphomolybdate. Ibid 247-52.—A description is given of the existing methods for the prepn. of Na phosphomolybdate as well as the methods investigated and used by the authors.
V. D. KARPENKO

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION
ECONOMICS



66

2

Equilibrium in ternary systems of nitrites, nitrates and chlorides of sodium and potassium. A. V. RABOVSKII AND D. S. SEVINA. *Trudy Inst. Pure Chem. Reagents* (Moscow) No. 11, 20-33 (1931). The isotherms for NaNO_2 , NaNO_3 , H_2O at 15° and for KNO_2 , KNO_3 , H_2O , NaNO_2 , NaCl , H_2O and KNO_2 , KCl , H_2O at 0°, 20°, 40°, 60°, 80° and 100° were derived.

2

Processes and Properties Notes

Cyclic separation of two salts. A. V. KAMOVICH. *Trans Inst Pure Chem*
/Moscow) No. 11, 62-113 (1931).—From an examn. of the theory of the wpt
by crystn. from soln. of 2 salts which do not form double salts a cyclic process giving
any required degree of purification has been devised. Methods of washing are also
considered. B. C. A.

ASO. 31.4 METALLURGICAL LITERATURE CLASSIFICATION

Researches on metal hydrides and carbonates. I. Iron hydride. A. V. RAKOVSKIY. *Trans. Inst. Pure Chem. Reagents* (Moscow) No. 12, 3, 1959. The Fe_2O_3 and Fe_3O_4 were obtained and dried under varying conditions. When the Fe_2O_3 is pptd. with alkalis, the gel always contains up to 30% CO_2 , the proportion varying with the H_2O content of the gel. Excluded sulfate, Cl^- , etc., are not simply removed by washing, but as a result of substitution by CO_3^{2-} . Fe hydride gels entirely free from sulfate cannot be obtained by pptg. a soln. of the sulfate, it is better to use the nitrate or chloride. II. Chromium hydride. A. V. RAKOVSKIY AND T. V. POLYANSKIY. *Ibid* 11-17. For prep. Cr_2O_3 free from Cl^- , $Na_2Cr_2O_7$ is reduced by CH_3OH in the presence of an excess of HCl , less CH_3OH is required by for complete reduction; otherwise the subsequently pptd. Cr_2O_3 will not be sufficiently pure; the hydride is pptd. from the filtered soln. with NH_4OH , washed with NH_4OH and then with H_2O . Preps. made from $Cr_2(SO_4)_3$ cannot be washed free from sulfate, all preps. obtained contained CO_2 and H_2O in variable proportions depending on the tension of aq. vapor in the room.

O. W. WILCOX

ASD SLA METALLURGICAL LITERATURE CLASSIFICATION

KARVORNY, A. V.

Metody skli-ivaniia fanery sukhiim koriatshim spetsodom. (TSADL. TRUDY, 1931, no. 93, p. 3-74, illus., tables, diagrams.)

Summary in English.

Title tr.: Methods of gluing plywood in a dry hot process.

QA911.M65 no. 93

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

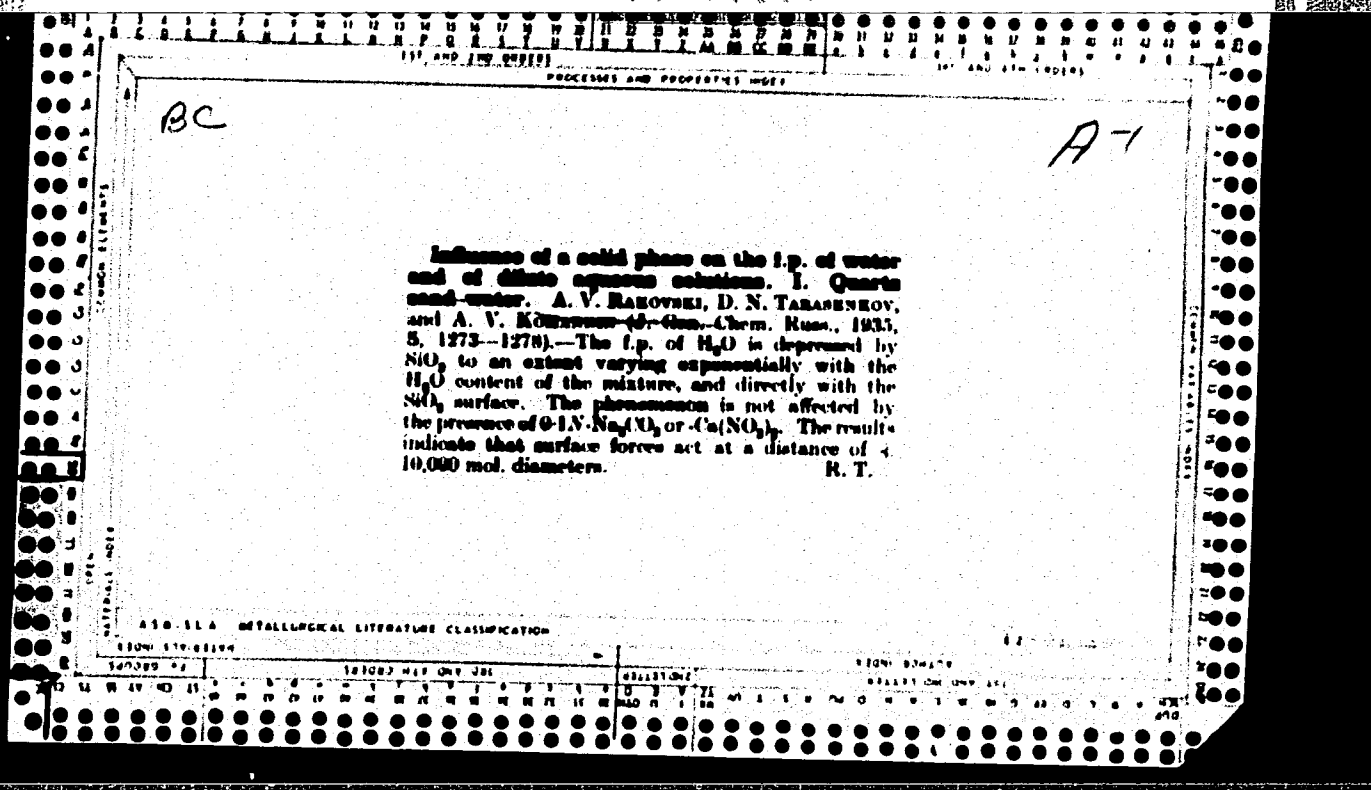
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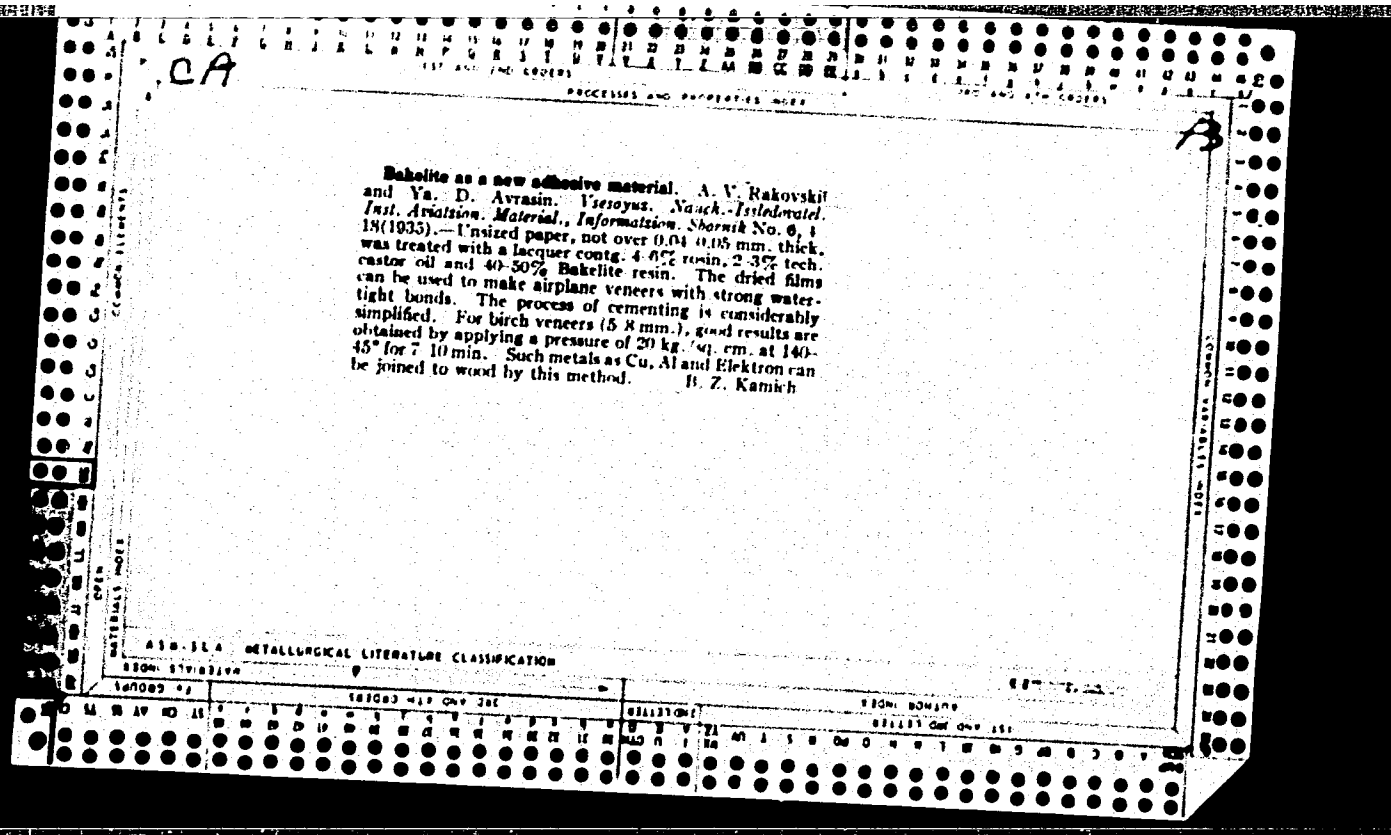
ASO-516 METALLURGICAL LITERATURE CLASSIFICATION

Metoropoly compounds IV. Borotungstates and metatungstates A. V. Rakovskii and A. V. Babayeva. *J. Gen. Chem.* (U.S.S.R.) 3, 50-60 (1933); cf. C. A. 27, 2465. For the detn. of the character of H₂O in borotungstates the salts were gradually dehydrated over H₂SO₄ of definite concn. in a desiccator (van Hemmel). The tabulated results show the existence of crystallhydrate regions. Thus in 5H₂O B₂O₃·24W₂O₃·1H₂O 1 region corresponds to a content of H₂O from 13.35 to 12.81%, and the other from 10.07 to 0.21%; while 5K₂O·B₂O₃·24W₂O₃·H₂O showed 1 region with 9.57 to 9.22% H₂O. B₂O₃·4W₂O₃·H₂O showed 2 regions with 13.78 to 10.68% H₂O. The results of hydration and dehydration of 1 indicate similar processes typical of absorption compds., requiring further study to obtain exact data. Chas. Blanc

ASO-11A METALLURGICAL LITERATURE CLASSIFICATION



Effect of a foreign solid phase on the freezing point of water and dilute aqueous solutions. II. System starch-water. A. V. Kikuyshil, D. N. Tarasenkoy and A. V. Komandinsk. *J. Gen. Chem.* (U. S. S. R.) 5, 1441-4 (1955), 31, 1, 30, 927. When the H₂O content of starch was 20% (i. e., the amt. which starch absorbs from gaseous H₂O phase) no freezing could be observed down to -108°. Indicating that this H₂O might be as H₂O of crystal. When the H₂O content was 31.26-46.56% the fraction which is held by surface forces from at 0° to -4.10°. Calculation shows that the number of mol. layers of H₂O per unit surface of the starch grains is the same as in the case of quartz sand. Presence of small amts. of salts, as Na₂CO₃, produced no effect on the freezing of the system starch-H₂O, above the regular freezing point lowering effect. S. I. M.



CH

7

Heteropoly compounds. V. The solubilities of some heteropoly compounds. A. V. Rakovskii and E. A. Nikitina. *J. Gen. Chem.* (U.S.S.R.) 6, 50-4 (1936); cf. C. A. 28, 2935. The solubilities of the following complex compds. in water are detd. at temps. from 0° to 90°: phosphotungstic acid and its di- and tri-Na salts and phosphomolybdic acid and its tri-Na salt. The soly. method, as well as the vapor-pressure method, indicates that these compds. do not form well-defined hydrates but rather have metastable hydrate regions. The soly. of tri-Na phosphotungstate (I) in the presence of NaCl, studied in the range 0-90°, decreases greatly with increase in NaCl concn. At 20°, the soly. of pure I is 47.99%; in a soln. contg. 5.17% NaCl it is 10.50% and in one contg. 26.19% it is only 0.14%. John Livak

ASA 56.8 METALLURGICAL LITERATURE CLASSIFICATION

FROST, Andrey Vladimirovich, prof. [deceased]. Prinsipali uchastnye:
 BUSHMAKIN, I.N.; VVEDENSKIY, A.A.; GRYAZNOV, V.M.; DEMENT'YEVA,
 M.I.; DINTSES, A.I.; DOBRONRAVOV, R.K.; ZHARKOVA, V.R.; ZHERKO,
 A.V.; IPAT'YEV, V.N.; KVIATKOVSKIY, D.A.; KOROBV, V.V.; MOOR,
 V.G.; NEMTSOV, M.S.; RAKOVSKIY, A.V.; REMIZ, Ye.K.; RUDKOVSKIY,
 D.M.; RYSAKOV, M.V.; SEREBRYAKOVA, Ye.K.; STEPUKHOVICH, A.D.;
 STRIGALEVA, N.V.; TATEVSKIY, V.M.; TILICHEV, M.D.; TRIFEL',
 A.G.; FROST, O.I.; SHILIYAYEVA, L.V.; SHCHEKIN, V.V.; DOLGOPOLOV,
 N.M., sostavitel'; GERASIMOV, Ya.I., otv.red.; SMIRNOVA, I.V., red.;
 TOPCHIEVA, K.V.; YASTREBOV, V.V., red.; KONDRASHKOVA, S.P., red.
 izd-va; LAZAREVA, L.V., tekhn.red.

[Selected scientific works] Izbrannye nauchnye trudy. Moskva.
 Izd-vo Mosk.univ., 1960. 512 p. (MIRA 13:5)

1. Chlen-korrespondent AN SSSR (for Gerasimov).
 (Chemistry, Physical and theoretical)

RAKOVSKIY, B.M. [Rakovs'kyi, B.M.] (Moskva)

Optimalizing efficiency controller of a blast furnace. Avtomatyka
no.6:82-87 '61. (MIRA 14:6)

(Blast furnaces)
(Automatic control)

RAKOVICH, E., ATHER, V., TECHNICAL

Universal fastening of coils to vibrating platforms. Avt. izv. 26
no. 3.15. No. 15. (1978. 12.5)

1. Nauchnik tsentral'noy laboratorii upravleniya avtomobil'noy
No. 2 Glavnoye upravleniye (avtomobil'nyy) dlya
soyuznogo avtomobil'noy (for Sakovskiy). 1. Tsentral'naya labora-
toriya upravleniya avtomobil'noy No. 2 Glavnoye upravleniye (for
Sakovskiy). 1. Tsentral'naya laboratoriya upravleniya avtomobil'noy
dlya soyuznogo avtomobil'noy (for Sakovskiy).

chemistry. A. V., Academy of Sciences USSR - Kiev - "The catalytic activity of the electrochemical limits in fuel cells" (Section A.1.2.6, afternoon, 11 Aug 61, afternoon) (Section A.1.2.6, afternoon)

CHAYKIN, L. P., Academy of Sciences USSR, Moscow - "The calculation of thermodynamic functions at wide temperature range" (Section A.1.2.6, afternoon)

KARPOV, Ya. A., Physico-Chemical Institute Lenin I. Ya. Karlov, Moscow - "Trifluorination phenomena in crystalline polymers" (Section B.1.7, afternoon)

KISELEV, A. A., Moscow State University Lenin M. V. Lomonosov - "The influence of surface heterogeneity and adsorbate-adsorbate interaction on the kinetics of heterogeneous reactions" (Joint Session, Sections A.1.2 and B.1.7, 8 Aug 61, morning)

KOROTKIY, V. E., Institute of Chemical Physics, Academy of Sciences USSR, Moscow - "The H₂O radical" (Section II.1, Section 10, 11 Aug 61, morning) (Also, Section A.1.1, Chairman, Session I - 9 Aug 61, afternoon)

MAMONTOV, V. I., Institute of Physical and Analytical Chemistry Lenin V. I. Vernadsky, Academy of Sciences USSR - "A novelty in the use of organic compounds for extraction of small amounts of the elements" (To be presented personally) (Section C.2 - 11 Aug 61, morning)

NIKOLAEVA, A. K., RANMIR, V. I., and NIKOLAEVA, L. P., Institute of Geochemistry and Analytical Chemistry Lenin V. I. Vernadsky, Academy of Sciences USSR - "New data on radiocatalytic investigations of the processes of fusion and fragmentation induced by high energy protons" (Section A.1 - 5 Aug 61, afternoon)

LOVINSKIY, L. A., Academy of Sciences USSR, Moscow - "Determining rate constants of elementary processes from flame velocities" (Section A.1.b)(c), 7 Aug 61, afternoon)

MAKHNEVICH, S. G., Probably Khar'kov, U.S.S.R. - "The equilibrium between metal atoms" (Section A.1.g)(1), Section II(A) - 11 Aug 61, morning)

PARMENOVSKIY, G. M., ELITSIN, A. M., MALAYEV, V. P., and SEMENOV, Ye. A., Moscow State University Lenin M. V. Lomonosov - "Emission of complex ions in multi-phase reactions" (Joint Session, Sections A.1.2 and B.1.3, 8 Aug 61, morning)

SPODNIY, Z. B., Institute of Chemical Physics, Academy of Sciences USSR - "Certain chemical reactions at reduced temperatures and reduced pressures of gases" (To be presented in Russian) (Physical-Chemical Institute, 12 Aug 61)

SHILOV, Ye. A., Academy of Sciences USSR, Kiev - "Active agents and the intermolecular complexes in the thermal decomposition of organic compounds" (Section A.1.2, 11 Aug 61, morning)

SHUMOV, M. F., Scientific Institute, Svetlovsk - "The equilibrium between metal atoms" (Section A.1.g)(1), Section II(A) - 11 Aug 61, afternoon)

TALBOTZ, V. A., Workshop Metals and the salt effect" (Section A.1 - 7 Aug 61, afternoon)

TRUBNITSEV, V. A., Institute of Chemical Physics, Academy of Sciences USSR - "Reactions of ions and molecules in the gas phase" (Section A.1 - 7 Aug 61, afternoon)

ZHIGONIN, Alexander S., Leningrad State University Lenin A. A. Zhukov - (Section A.1, Chairman, Session I - 9 Aug 61, afternoon Session) (Also as program for Section A.1, Session I - 9 Aug 61, afternoon)

ZHEGIN, Alexander S., VILKOV, P. I., KARPOV, A. E., and DOKUCHAY, S. G., Leningrad State University Lenin A. A. Zhukov - "Thermodynamics and kinematics of radicals in the photodissociation of organic compounds" (Section A.1 - 9 Aug 61, afternoon)

ULTRA-VIOLET radiation [Section A.1, Session I - 9 Aug 61 - afternoon]

TYURBIN, B. S., Scientific Institute Physical-Chemical Institute Lenin I. Ya. Karlov - "On the dissociation of molecules in electric impact and the early stages of photoionization processes" (Section A.1, Session I - 9 Aug 61, afternoon)

VAKHTANGIYAN, Davanil Yu., and KHACHATRYAN, V. V., Institute of Geochemistry and Analytical Chemistry Lenin V. I. Vernadsky, Moscow - "The plasma precursor and its use for spectral analysis of alloys and rocks" (Section C.1 - 5 Aug 61, afternoon)

VINOGRADOV, A. P., LEVINCHENKO, A. E., and REYNOLD, J. B., Institute of Geochemistry and Analytical Chemistry Lenin V. I. Vernadsky, Academy of Sciences USSR - "The study of nuclear reactions in iron asteroids under the action of high energy protons" (Section A.1 - 5 Aug 61, afternoon)

VANDUYKE, L. W., and ALDRIDGE, T. E., Academy of Sciences USSR - "The separation chemistry Lenin V. I. Vernadsky for semiconductors techniques by Radiochemical Laboratory" (To be presented in Russian) (Section C.1 - 5 Aug 61, afternoon activation analysis) (To be presented in Russian)

KHARCHUK, Boris V., Institute of Physical-Chemical Chemistry, Minsk - "The effect of donor and acceptor admixtures on the decomposition rate of salts" (Section A.2 - 8 Aug 61, afternoon)

RAKOVSKIY, E.F.

Order in the preservation of drugs. Med. sentra 20 no.4:51-52 Ap
'61. (MIRA 14:5)

1. Iz bol'nitsy g. Pikalevo, Leningradskoy oblasti.
(DRUGS—PRESERVATION)

RAKOVSKIY, E.I., inzh.

Asphalt concrete with a high rubble content. Avt. dor. 27 no.9:
18-19 S '64. (MIRA 17:11)

RAKOVSKIY, E.Ye.

Conference on extraction in analytical chemistry. Atom. energ.
12 no.5:439-441 My '62. (MIRA 15:5)
(Extraction (Chemistry))

LAVRUKHINA, A.K.; RAKOVSKIY, E.Ye.; SU KHUN-GUY [Su Hang-Kuei];
KHOYNATSKIY, S.

Fission of antimony nuclei induced by high energy protons.
Zhur. eksp. i teor. fiz. 40 no.2:409-418 F '61. (MIRA 14:7)

1. Institut geokhimii i analiticheskoy khimii AN SSSR.
(Antimony)(Protons) (Nuclear fission)

LAVRUKHINA, A.K.; RAKOVSKIY, E. Ye.; SU KHUN-GUY [Su Hung-Kuei]; KHOYNATSKIY, S.

Fission of antimony nuclei induced by fast protons. Dokl. AN
SSSR 137 no.4:826-829 Ap '61. (MIRA 14:3)

1. Institut geokhimii i analiticheskoy khimii im. V. I. Vernad-
skogo AN SSSR. Predstavleno akademikom A.P. Vinogradovym.
(Antimony) (Protons)

RAKOVSKIY, E.F.

Storing drugs in a section of a hospital. Zdrav. Ros. Feder. 4
no.12:23-24 D '60. (MIRA 13:12)

1. Iz bol'nitsy Pikalovo (glavnyy vrach Z.I. Shtapova) Leningradskoy
oblasti Boksitogorskiy rayona.
(DRUGS—PRESERVATION)

RAKOVSKIY, E.I., inzh.

Use of surface active agents in road construction. Avt.dor. 24
no.4:7-8 Ap '61. (MIRA 14:5)
(Road construction) (Surface active agents)

RAKOVSKIY, E.I., inzhener.

Preparing asphalt concrete mixtures with the use of moist
materials. Avt. dor. 19 no.7:13-14 J1 '56. (MLRA 9:10)

(Pavements, Asphalt)

RAKOVSKIY, E.I., inzhener.

Bitumen spreader. Avt.der.19 no.8:3 of cover Ag '56 (MIRA 9:10)
(Road materials)

RAKOVSKIY, E.I., inzh.

Experimental construction of an asphalt-concrete pavement with
a rough surface. Avt.dor. 25 no.11:5-6 N '62. (MIRA 15:12)
(Pavements, Asphalt)

POZDNYAKOV, A.A.; RAKOVSKIY, E.V.

Conference on Methods for the Concentration of Elements in
Analytical Chemistry. Atom. energ. 15 no.6:534-536 D '63.
(MIRA 17:1)

RAKOVSKIY, E.Ye.

Review of the book "Proceedings of the commission of analytical chemistry." Vol. 14. Extraction methods in analytical chemistry. Zhur. anal. khim. 20 no.1:135-136 '65. (MIRA 18:3)

RAKOVSKIY, E.Ye.

Conference on Methods of Concentration of Elements in Analytic
Chemistry. Vest. AN SSSR 33 no.10:107-109 O '63. (MIRA 16:11)

S/056/61/040/002/003/047
B113/B214

AUTHORS: Lavrukhina, A. K., Rakovskiy, E. Ye., Su Khun-guy,
Khoynatskiy, S.

TITLE: Nuclear fission of antimony by high-energy protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40,
no. 2, 1961, 409-418

TEXT: The nuclear fission products of antimony due to 660-Mev protons have been investigated to obtain the main characteristics of this process: mass spectrum, isotopic composition of the fission fragments, distribution of the nuclear charge, and the amount of the cross section. The target for irradiation was prepared from metallic antimony which was purified (spectrally pure) by repeated zone melting. The antimony target was coated with aluminum which served as a monitor for the determination

of the proton flux according to the reaction $Al^{27}(p,3pn)Na^{24}$. This target was irradiated in the inner beam of the synchrocyclotron of the LYAP OIYaI (Laboratory for Nuclear Problems of the Joint Institute of Nuclear Research) for 0.5 - 3 hr. The elements of atomic numbers 11-37
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were separated by chemical methods. The activity of the preparations was determined by the MCT-17 (MST-17) end-window counter. For the identification of the individual activities, the sign of the radiation was determined in a magnetic analyzer. Two groups of products could be identified from the data on half-life, mode of disintegration, and mean production cross section. Between Rb and Zn ($Z \geq 30$) are isotopes whose yield decreases rapidly with increasing $\Delta Z = Z_0 - Z$ (Z_0 is the atomic number of the initial nucleus). The range $16 \leq Z \leq 28$ is to be attributed to the fission products for which no change in the yield was observed with a change in Z . The interpolation method was used for estimating the yield of the unidentified, stable, long- and short-lived radioactive fission fragments from antimony. It is seen from Fig. 2 that the main part of fission fragments lies in the immediate neighborhood of the broken line of stable nuclei. The character of distribution of the fragment yield from antimony in A and Z can be determined from the totality of the experimental and interpolated data. The mass distribution curve of the isotopic yield is dome-shaped. On the fission

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of antimony nucleus there occurs a considerable increase in the relative amount of neutron-deficient isotopes. σ and the amount of the most probable charge Z_p was determined for all isobars between $A = 37$ and $A = 62$. It was found that $Z_p(A)$ lies very near the line of stable nuclei.

The charge distribution is constant for all the isobars. Fig. 8 shows the distribution curves of the total yield as a function of Z for the fission fragments of antimony, holmium, bismuth, and uranium nuclei. It is also seen from Fig. 8 that the increase in the nuclear charge of the target makes the curve broader which indicates that the contribution of the asymmetric fission increases with increasing charge of the fissioned nucleus. A comparison of the curves in Fig. 8 shows that the yield of fission fragments of antimony nuclei is significantly smaller than that of the heavier nuclei. The total cross section for nuclear fission of antimony by 660-Mev protons was found to be 0.25 mb. From the results obtained it is possible to conclude that a regular change in all the fundamental parameters of the fission process is connected with the change in the charge of the target nucleus. V. N. Mekhedov and T. B. Malyscheva are thanked for their valuable advice; L. D. Revina,

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L. D. Firsova, and I. S. Kalicheva are thanked for their help in the experimental part of the work. Yu. V. Yakovlev, L. A. Smakhtin, V. Shamov, and V. V. Malyshev are mentioned. There are 8 figures, 2 tables, and 18 references: 15 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences USSR)

SUBMITTED: July 8, 1960

Legend to Table 1: Yields of identified fission fragments from antimony bombarded by 660-Mev protons. 1) Element, 2) atomic weight, 3) mode of disintegration, 4) experimental half-life, 5) half-life taken from tables. ЭЗ - electron capture, ИП - isomeric transition, час - hour, день - day, мин - minute.

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Table 1

Элемент (1)	Массовое число по А (2)	Тип распада (3)	$T_{1/2}$, эксперимент (4)	$T_{1/2}$, таблица (5)	σ , 10 ⁻²⁸ см ² (6)
¹¹ Na	24	β^-	14,5 час	15 час	95 (2)**
¹² Mg	28	β^-	21,5 час	21,2 час	9,0 (4)
¹³ P	32	β^-	14,1 дн	14,3 дн	3,0*
¹⁶ S	38	β^-	~ 3 час	2,9 час	0,7 (2)
¹¹ Cl	33	β^-	~ 34 мин	37,3 мин	5,7 (3)
	39	β^-	58 мин	55,5 мин	1,2 (3)
¹⁹ K	43	β^-	~ 1 дн	22,4 час	8,0 (3)
²⁰ Ca	47	β^-	~ 5 дн	~ 5 дн	3,5 (3)
²² Ti	45	$\beta^+ \beta^+ \dots$	3,2 час	3,1 час	5,8 (3)
²³ V	48	$\beta^+ \beta^+$	16,7 дн	16,0 дн	6,8 (7)
²⁴ Cr	48	β^+	23,5 час	23 час	4,0 (5)
²⁵ Mn	56	β^-	2,5 час	2,6 час	8,3 (3)
²⁵ Fe	59	β^-	~ 46 дн	45,1 дн	8,0 (5)
	58 ^m	ИП***	0,8 час	0 час	3,1 (5)
²⁷ Co	61	β^-	~ 120 мин	99-110 мин	5,1 (5)
²⁸ Ni	65	β^-	2,7 час	2,6 час	5,5 (2)
	66	β^-	~ (2) час	55 час	2,2 (2)
	62 ^m	$\beta^+ \beta^+$	9,3 час	9,3 час	3,9 (2)
³⁰ Zn	69 ^m	ИП	~ 14,5 час	13,8 час	15 (2)
	72	β^-	48 час	49 час	1,1 (2)
	66	$\beta^+ \beta^+$	9,3 час	9,4 час	29 (5)
³¹ Ga	67	β^+	78 час	78 час	24 (4)
	72	β^-	14,5 час	14,3 час	3,0 (3)

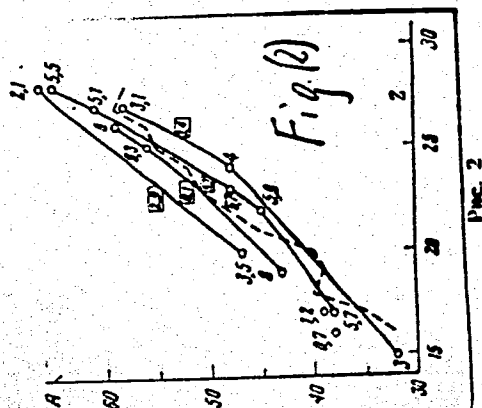
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	72	93	9,8 ∂H	~ 0 ∂H	33 (2)
$^{73}_{34}\text{Se}$	73	$\beta^+, 93$	7,1 μac	7,1 μac	63 (2)
	75	$\beta^+, 93$	1,6 μac	1,6 μac	92 (2)
$^{70}_{35}\text{Br}$	70	β^-	16 μac	17,2 μac	32 (2)
	80 ^m	HfI	4,3 μac	4,4 μac	24 (2)
$^{86}_{37}\text{Rb}$	86	β^-	18-23 ∂H	18,7 ∂H	410 (4)

Fig. 2



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Fig. 8

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